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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,427	02/06/2006	Rudolf Rigler	2923-747	8429
6449 7590 12/17/2009 ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005				
EXAMINER ELEY, JESSICA L				
ART UNIT 2884		PAPER NUMBER		
NOTIFICATION DATE 12/17/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

10/567,427

Applicant(s)

RIGLER ET AL.

Examiner

JESSICA L. ELEY

Art Unit

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 23 November 2009 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 7-12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. **Claims 7-9, 11, and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyt US 2001/0033374 A1 (*Hoyt*), Stern et al. US 2005/0012033 A1 (*Stern*) and Modlin et al. US 6,071,748 (*Modlin*).

Regarding **claims 7 and 12**, Hoyt teaches a device for determining luminescent molecules by means of optical excitation in confocal measuring volumes (FIG. 6), comprising:

A carrier arrangement (plate **33**) for holding a sample that contains molecules (illuminate sample **50**) to be determined,

An optical excitation device for providing multiple light beams and, in particular, comprising

at least one light source **30**,

at least one passive or active diffractive optical element **40** for splitting penetrating light into multiple beam, and

a focusing optics 36 for focusing penetrating multiple light beams into the sample elements in the respective measuring volume for the purpose of exciting luminescence in the multiple elements,

An optical detection device 55 for detecting luminescence for the confocal volume elements, for capturing emitted radiation from the multiple confocal volume elements, and

Signal processing and evaluation means for processing the signals provided by the detector (FIG. 7).

Hoyt does not go into detail about the detector element 55, instead leaving it to one of ordinary skill in the art to pursue the known options in the art. Stern teaches an imager for use in the field of bio-fluorescence (§0014). The detector taught by Stern comprises a spatially resolving sensor matrix of avalanche photodiodes that is produced using IC technology, in particular CMOS technology, and is integrated in a sensor chip with Geiger mode wiring (§0117). It would be obvious to one of ordinary skill in the art at the time the invention was made to use the imager taught by Stern in the system taught by Hoyt since Stern teaches that this imager outperforms with respect to low-light sensitivity and high speed applications requiring real-time continuous data acquisition and signal processing (§0117).

Hoyt does not specifically teach the samples being confocal volume elements. However such sample containers are well known in the art. Modlin teaches a fluorescence detector that uses confocal volume optics and elements to analyze the sample (C13 L14-31). It would be obvious to one of ordinary skill in the art at the time the invention was made that the technology taught by Hoyt as applied to a sample 50 contained in a microtiter plate 33 can be applied to the

confocal volume elements taught by Modlin when the need exists for analyzing the wells in the microtiter plate **33** with anticipated success.

Regarding **claim 8**, the disclosures of Hoyt, Stern, and Modlin address all the limitations of parent claim 7, further the teachings of Stern show the signal processing and evaluation means are integrated in the sensor chip (\P 0083).

Regarding **claim 9**, the disclosures of Hoyt, Stern, and Modlin address all the limitations of parent claim 7, further the teachings of Stern teach the detector in which the signal processing and evaluation means comprises at least one cross-correlation function of first or higher correlation orders of measuring signals (\P 0040).

Regarding **claim 11**, Hoyt teaches a device for determining luminescent molecules by means of optical excitation in confocal measuring volumes (FIG. 6), comprising:

A carrier arrangement (plate **33**) for holding a sample that contains molecules (illuminate sample **50**) to be determined,

An optical excitation device for providing multiple light beams and, in particular, comprising

at least one light source **30**,

at least one passive or active diffractive optical element **40** for splitting penetrating light into multiple beam, and

a focusing optics **36** for focusing penetrating multiple light beams into the sample elements in the respective measuring volume for the purpose of exciting luminescence in the multiple elements,

An optical detection device **55** for detecting luminescence for the confocal volume elements, for capturing emitted radiation from the multiple confocal volume elements, and

Signal processing and evaluation means for processing the signals provided by the detector (FIG. 7).

Hoyt does not go into detail about the detector element **55**, instead leaving it to one of ordinary skill in the art to pursue the known options in the art. Stern teaches an imager for use in the field of bio-fluorescence (§0014). The detector taught by Stern comprises a spatially resolving sensor matrix of avalanche photodiodes that is produced using IC technology, in particular CMOS technology, and is integrated in a sensor chip with Geiger mode wiring (§0117). It would be obvious to one of ordinary skill in the art at the time the invention was made to use the imager taught by Stern in the system taught by Hoyt since Stern teaches that this imager outperforms with respect to low-light sensitivity and high speed applications requiring real-time continuous data acquisition and signal processing (§0117). Further the teachings of Stern show the signal processing and evaluation means are integrated in the sensor chip (§0083). Further the teachings of Stern teach the detector in which the signal processing and evaluation means comprises at least one cross-correlation function of first or higher correlation orders of measuring signals (§0040).

Hoyt does not specifically teach the samples being confocal volume elements. However such sample containers are well known in the art. Modlin teaches a fluorescence detector that uses confocal volume optics and elements to analyze the sample (C13 L14-31). It would be obvious to one of ordinary skill in the art at the time the invention was made that the technology taught by Hoyt as applied to a sample **50** contained in a microtiter plate **33** can be applied to the

confocal volume elements taught by Modlin when the need exists for analyzing the wells in the microtiter plate 33 with anticipated success.

7. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyt US 2001/0033374 A1 (*Hoyt*), Stern et al. US 2005/0012033 A1 (*Stern*) and Modlin et al. US 6,071,748 (*Modlin*), and further in view of Silver US 6,078,681 (*Silver*).

Regarding claim 10, the disclosures of Hoyt, Stern, and Modlin address all the limitations of parent claim 7, as discussed above. Hoyt, Stern, and Modlin do not directly teach the signal processing and evaluation means comprising circuits for carrying out a fast Fourier transform of the measuring signals. However, such a step is very common in the art as evidenced by Silver. Silver teaches an imaging system that uses fast Fourier transform as an analysis tool (column 12 lines 50-54). It would be obvious to one of ordinary skill in the art at the time the invention was made to use a fast Fourier transform of the measuring signal since Silver teaches that standard software exists for analysis of multichannel image data (column 12 lines 49-56), which the image data from Hoyt, Stern, and Modlin is.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA L. ELEY whose telephone number is (571)272-9793. The examiner can normally be reached on Monday - Thursday 8:00-6:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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2884

/J. L. E./
Examiner, Art Unit 2884